THE NATIONAL ENVIRONMENTAL INFORMATION EXCHANGE NETWORK CONCEPT

A White Paper of the

INFORMATION INTEGRATION NETWORK

PURPOSE

To improve the overall integration of environmental information, the States and EPA are developing a comprehensive data exchange network that will provide a wide-range of shared information among states and EPA, tribes, localities, the regulated community and other data partners.

EPA's information integration effort is, foremost, a partnership with the States and others to develop and use a national Network for environmental information exchange, build and support the infrastructure needed to sustain the Network, and to position EPA and its partners to participate in the Network and the data exchange it will facilitate.

The objectives of this network are to improve environmental decision-making, improve data-quality and accuracy, ensure security of sensitive data, reduce data redundancy and reduce burden on those who provide and those who access information.

The primary elements of this effort are:

1. Defining and implementing **a national network for environmental data exchange** in partnership with the States and other data partners;
2. **Assisting EPA's information partners** to participate in that exchange; and
3. **Positioning EPA to participate in the network** and the data exchange it will facilitate and integrating existing information collection processes with a centralized data exchange to streamline information sharing.

DISCUSSION

I. <u>Building the National Network</u>

- Currently the States and EPA operate a wide array of individual data and information relationships. To initiate the national Network, States and EPA will build on their existing relationships and applications for providing and accessing environmental data and information to develop a standards-based, highly connected, dynamic, flexible and secure national Network, with broad-based voluntary participation of the individual States and EPA programs, that will provide a wide-range of shared information to the States, Tribes, localities, the regulated community, EPA and the public. (Additional data and information

providers will be added to the Network as they are able.)

- The Network integration blueprint being developed by the States and EPA will address the following in order to meet evolving business needs:

  - defining the data and technical and functional requirements for the national Network for environmental data exchange, including:
    - *identifying similar data across systems to enable data quality improvements and reduced data redundancy*
    - *ensuring security of sensitive data*
    - *reducing burden on those who provide and those who use environmental information*
  - designing and building the basic infrastructure needed for the Network;

II. Assisting/Enabling Partners

- In order to assist/enable EPA's planning and regulatory partners to participate in the Network for environmental data exchange EPA will:

  - Support collaborative state development & knowledge/technology sharing
  - Work with other partners beyond States,
  - Award One Stop grants to eligible States
  - Coordinate the Agency's other program efforts to work with States to modernize and integrate

III. Positioning the Agency to participate in the national Network

- In addition to EPA's commitment to build the national Network, the Agency needs to accelerate the modernization and integration of its' internal information systems to meet and support the goals of the Network that is envisioned. In particular, efficient integrated information exchange and access are essential to the Agency's effectiveness as a network member. In addition, the internal integration efforts will enable the Agency to better address its emerging needs to plan for and address cross-cutting environmental issues and to assess overall Agency performance.

- The national Network represents the maturing of past EPA integration efforts and the beginning of a corporate approach to information management at EPA.

- Key components have been identified as fundamental building blocks of the new "enterprise information environment" that can effectively and efficiently be pursued now and be consistent within an overall EPA information architecture. These are not 'new' projects for the Agency - what will be new is their coordination and alignment into

interdependent components of a complete Agency systems architecture.

- The internal integration effort has **5 basic elements**:

1. An effective Central Data Exchange (CDX) that: will be integrated into the Agency overall processes of information exchange; will be phased-in on a schedule agreed upon with EPA's program offices; and, will become the primary, but not sole mechanism of exchange of information with data partners.

2. An integrated system of access to Agency information that: would be based on and consistent with the Agency-wide Access strategy currently under development; would streamline and simplify access to Agency information resources; and could house an access repository that will allow efficient access separate from the exchange/program operations.

3. Modernized, integrated systems within programs and regions that: would promote balanced development of central services and distributed access to modernized legacy systems; would be achieved through corporate funding decisions and jointly-developed guidance and time lines: and, would leverage current and future program/region IT investments to enhance integration.

4. Agency-wide Registries which will link central data exchange and integrated access services to program/regional databases to: improve accessibility, quality of information, reduce cost and burden by providing single, authoritative reference links to more detailed information residing elsewhere; contain "core" information (e.g., "libraries", chemical lookup tables, reference materials)shared across programs; and managed corporately - distinct from program information collections.

5. Other agency wide services to ensure effective use and access to information, including: corporate interface and analysis tools; data standards repository; and, the Agency access repository (noted above). and queries, etc.

CONCLUSION/RECOMMENDATION

We recommend that this concept for a national network and internal integration including the principles in Appendix 1 be discussed, and adopted, per the results of the discussion, to provide a clear template for Agency information integration efforts.

APPENDIX 1. PRINCIPLES CONSISTENT WITH ACHIEVING INTERNAL INTEGRATION OF EPA INFORMATION

NOTE: This appendix contains, **for discussion**, principles on which EPA's internal integration should be based. These are of two types. **Overarching principles** provide a general framework that would guide overall plans and actions for program and regional information systems. The **remaining principles** provide guidance and expectations regarding specific aspects of how program and regional information systems and practices would relate to corporately managed systems and services.

Overarching principles

1. The integration of environmental information must adhere to good business practices:
   - Information systems should derive from established needs of internal and external customers, and be able to effectively respond to emerging needs.
   - Information systems should minimize data collection burden and use resources efficiently.
   - Information systems should provide effective and economical access to EPA and other data.
   - Information systems should authenticate the sources of information.

2. The integration of environmental information must be consistent with principles accepted across the Federal Government. This includes:
   - Meeting State/Federal interoperability standards
   - Supporting FGDC recommendations
   - Adhering to ICR rules and ITMRA reviews
   - Implementing GPEA, including required electronic reporting
   - Making IT decisions consistent with an "Enterprise Information Architecture" as mandated by the 1996 Clinger-Cohen Act.
   - Using the information engineering approach recommended by the "Federal Enterprise Architecture Framework"[1] into the I-3 project planning.

3. An integrated environmental system must allow effective participation by data partners of widely varying resources and sophistication of existing information technology.

4. Internal integration of EPA information rests significantly on the creation of an Agency culture that accepts corporate responsibility for managing information and information resources. This includes:
   - Moving toward an IT infrastructure and coordinated information architecture centered in but not dominated by OEI in which Agency-wide resources are relied upon for basic information processes such as data exchange and access.
   - Developing and implementing standards by which programs manage their data, and co-manage corporate data with OEI.
   - Minimizing redundant IT purchases, and uncoordinated, unstandardized design, and deployment of single-purpose systems.

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[1] CIO Council, *Federal Enterprise Architecture Framework,* September 1999.

Principles related to EPA's Central exchange

- Major system modernizations should be compatible or coordinated with the Agency's central information exchange.
- New systems developed for data collection should start with presumption that the central information exchange be utilized.

Principles related to EPA's Facility registry

- TRI, and the Regulatory Activity component of I-3 will directly use the Facility Registry system as their internal facility tables when the FRS is fully operational,
- Other major data systems (REI systems) should convert to use of the FRS on an agreed-upon schedule when FRS is operational.
- Any new EPA system utilizing facility information will use FRS.
- Efforts to modernize other systems that use facility information should start with the presumption that the FRS will be utilized

Principles related to EPA's Place Registry/Spatial Repository

- Mapping applications for public access should use or compatible with the PR/SR.
- All data acquisition for spatial data coverages should be coordinated with the OEI geospatial group.
- New Program/ regional place layers and aggregations should be compatible and integrated with the PR/SR
- As existing program/regional place layers and aggregations are updated they should be compatible with and referenced in the place registry and integrated if possible.

Principles related to additional Agency registries

- new data collection/storage systems should be compatible and integrated with additional Agency registries as they become available and fully functional.
- Existing data collection/storage systems should be compatible with and integrated, if possible, with additional Agency registries as they become available.
- New 'registries' that duplicate information in Agency registries (facility, corporate, place, substance, etc.)should be developed only by making full use of the relevant central registry.

Guidelines for system development

- Standards - All national systems will incorporate approved data standards by the recommended date.
- Development Environment - all new systems development plans will be in an environment consistent with the Technical Infrastructure Plan as identified by OEI, upon which all integrated development will be based.
- Application Development aimed at cross-media presentation should be based upon or compatible with applications/software designed to integrate the registries with program and regional systems